Orissa School of Mining Engineering Keonjhar

Department of Mechanical Engineering

Lesson Plan w.e.f 01.07.2026-05 .11.2026

DISCIPLINE	SEMESTER	NAME OF THE FACULTY
MECHANICAL ENGG.	3RD	Er.GEETANJALI MARDI(Sr. Lect.)
SUBJECT/CODE	NO. OF PERIODS ALLOTTED IN A WEEK : 03	SEMESTER W.E.F.: 01.07.2026
MANUFACTURING PROCESS TH-1		TO DATE : 05-11-2026
		NUMBER OF WEEKS : 15

LEARNING OUTCOMES-

After completion of the course, the students will be able to

CO1- Illustrate the importance of cutting fluids &lubricants in machining

CO2-Study various types of basic production processes.To select, operate and control the appropriate processes for specific applications.

CO-3 Define the concept of gear makingand list various gear materials.

CO-4 Describe the importance of presstools and various die operations.

CO-5 Explain grinding and finishing processes.

Month	Period	Date	Topics to be Covered	Learning Outcome
JULY	1	1-07-2026	Cutting Fluids & Lubricants: Introduction; Types of cutting fluids,	CO1
JULY	2	01-07-2026	Fluids and coolants required in turning, drilling, shaping, sawing & broaching;	CO1
JULY	3	07-07-2026	Selection of cutting fluids, methods of application of cutting fluid	CO1
JULY	4	08-07-2026	Classification of lubricants (solid, liquid, gaseous), Properties and applications of lubricants.	CO1
JULY	5	08-07-2026	Lathe Operations: Types of lathes – light duty, medium duty and heavy duty geared lathe	CO2
JULY	6	14-07-2026	CNC lathe; Specifications; Basic parts and their functions;	CO2

AUGUST	7	15-07-2026	Operations and tools – Turning, parting off,	CO2
AUGUST	8	15-07-2026	Knurling, facing, Boring, drilling,threading, step turning, taper turning	CO2
AUGUST	9	21-07-2026	Nomenclature of single point cutting tool of lathe	CO2
AUGUST	10	22-07-2026	REVISION & QUESTION ANSWER DISCUSSION	
AUGUST	11	22-07-2026	Broaching Machines: Introduction to broaching; Types of broaching machines – Horizontal type (Single ram & duplex ram	CO2
AUGUST	12	28-07-2026	Vertical type, pull up,pull down, and push down; Elements of broach tool;	CO2
AUGUST	13	29-07-2026	broach teeth details; Nomenclature;Tool materials. Drilling	CO2
AUGUST	14	29-07-2026	Classification; Basic parts and their functions;	CO2
AUGUST	15	04-08-2026	Radial drilling machine,Types of operations	CO2
AUGUST	16	05-08-2026	Specifications of drilling machine,Types of drills and reamers	CO2
AUGUST	17	05-08-2026	REVISION & QUESTION ANSWER DISCUSSION	
AUGUST	18	11-08-2026	Welding: Classification; Gas welding techniques; Types of welding flames	CO2
AUGUST	19	12-08-2026	Arc Welding – Principle, Equipment, Applications	CO2
AUGUST	20	12-08-2026	Shielded metal arc welding,Submerged arc welding;	CO2
SEPTEMBER	21	18-08-2026	TIG / MIG welding,Resistance welding - Spot welding, Seam welding, Projection welding	CO2
SEPTEMBER	22	19-08-2026	Welding defects,Brazing and soldering: Types, Principles, Applications	CO2
SEPTEMBER	23	19-08-2026	Milling: Introduction; Types of milling machines: plain,Universal, vertical; constructional details – specifications	CO2
SEPTEMBER	24	25-08-2026	Milling operations: simple, compound and differential indexing	CO2
SEPTEMBER	25	01-09-2026	Milling cutters – types; Nomenclature of teeth;	CO2
SEPTEMBER	26	02-09-2026	Tool signature of milling cutter; Tool & work holding devices	CO2
SEPTEMBER	27	02-09-2026	REVISION & QUESTION ANSWER DISCUSSION	
SEPTEMBER			1ST INTERNAL	
SEPTEMBER			1ST INTERNAL	
SEPTEMBER	28	08-09-2026	Gear Making: Manufacture of gears – by Casting, Moulding, Stamping, Coining Extruding,	CO2,CO3

			Rolling, ;	
SEPTEMBER	29	09-09-2026	Machining; Gear generating methods: Gear Shaping with pinion cutter & rack cutter	CO2,CO3
SEPTEMBER	30	22-09-2026	Gear hobbing; Description of gear hob; Operation of gear hobbing machine	CO3
OCTOBER	31	23-09-2026	Description of gear hob; Operation of gear hobbing machine; Gear finishing processes;	CO3
OCTOBER	32	23-09-2026	Gear materials and specification; Heat treatment processes applied to gears	CO3
OCTOBER	33	29-09-2026	Press working: Types of presses and Specifications,	CO2,CO4
OCTOBER	34	30-09-2026	Press working operations - Cutting, bending, Drawing, punching, blanking, notching, lancing	CO2,CO4
OCTOBER	35	30-09-2026	Die set components- punch and die shoe, guide pin, bolster plate, stripper, stock guide, feed stock, pilote.	CO2,CO4
OCTOBER	36	06-10-2026	Punch and die clearances for blanking and-piercing, effect of clearance. REVISION & QUESTION ANSWER DISCUSSION	CO4
OCTOBER	37	07-10-2026	Grinding and finishing processes: Principles of metal removal by Grinding; Grinding and finishing processes: Principles of metal removal by Grinding; Abrasives – Natural & Artificial;	CO5
OCTOBER	38	07-10-2026	Bonds and binding processes: Vitrified, silicate, shellac, rubber, Bakelite;	CO5
OCTOBER	39	13-10-2026	Factors affecting the selection of grind wheels: size and shape of wheel, kind of abrasive, grain size, grade and strength of bond,	CO5
OCTOBER	40	14-10-2026	structure of grain, spacing, kinds of bind material; Standard marking systems:Meaning of letters & numbers sequence of marking, Grades of letter	CO5
OCTOBER	41	14-10-2026	Grinding machines classification-: Cylindrical, Surface, Tool & Cutter grinding machines; Construction details;	CO5
OCTOBER	42	21-10-2026	Principle of centerless grinding; Advantages & limitations of centerless grinding;	CO5
OCTOBER	43	21-10-2026	Finishing by grinding: Honing, Lapping, Super finishing;	CO5
OCTOBER	44	27-10-2026	Electroplating: Basic principles, Plating metals, applications; Hot dipping	CO2
OCTOBER	45	28-10-2026	Galvanizing, Tin coating, Parkerizing, Anodizing; Metal spraying: wire process, powder process and applications;	CO2,CO5
OCTOBER	46	28-10-2026	Organic coatings: Oil base Paint, Lacquer base, Enamels, Bituminous paints, rubber base	CO2,CO5

			coating; Finishing specifications.	
OCTOBER			2ND INTERNAL	
OCTOBER			2ND INTERNAL	
NOVEMBER	47	03-11-2026	Grinding and finishing processes: Principles of metal removal by Grinding; Abrasives – Natural & Artificial;	CO5
NOVEMBER	48	04-11-2026	REVISION & QUESTION ANSWER DISCUSSION	
NOVEMBER	49		VST-1	
NOVEMBER	50		VST-2	
			;	

Prepared by

Er. Geetanjali Mardi

HOD, Mechanical Engg

OSME, Keonjhar

Principal

OSME, Keonjhar